nasal septum bound the tip of the nose down so firmly that it was impossible to raise it far enough to get the prop of bone under it. I therefore incised the cartilaginous septum for a distance of about 1½ cm. in an upward direction, and was now able to raise the bridge-plate far enough to admit the upper end of the prop. The bridge-plate then rested on the prop as the ridge of a tent does on a tent-pole; the tip of the nose was elevated and made a line now quite straight with the rest of the bridge. The wound became infected after this last operation, probably owing to contact with the nasal mucosa; the patient had a few days of fever and an abscess showed in the gums above the upper incisors, which was drained, and healed in about a week. The patient's present appearance is gratifying. His nose is straight when seen in profile, and presents a creditable appearance from the front. The scars in his cheeks have grown paler and considerably less noticeable during the last few months, and falling to a great extent in the natural lines of the face, are not disturbing.

I think, gentlemen, that this case shows the importance of the use of autogenous living material in bone-transplantation. Had I introduced silver, or celluloid, or dead bone, or even the bone of another individual as props for my plastic, I would, I think, have stood a very slim chance of their remaining in situ after the infection of the last operation, and the work of the four previous operations would have been lost.

The patient showed himself on July 26th, four months and a half after the first implantation of bone. The implanted bone was firm, showed no signs of reabsorption or elimination. All of the scars had remained closed.

INTESTINAL INDIGESTION IN ADULTS.*

By E. SCHMOLL, M. D., and WALTER C. ALVAREZ, M. D., San Francisco.

For many years now, physiologists have been pointing out that the most powerful and varied ferments are those poured into the small intestine; that its absorbing surface is the largest part of the tract, and that intestinal digestion and absorption must be, if anything, more important than that which takes place in the stomach. When we remember, however, how slowly advances in the cognate sciences make their impress upon general medicine, it is not so surprising that we have to search carefully even in our latest books for any mention of intestinal digestion and its disturbances. There is no such heading amongst the able articles of Albutt and Rolleston's system, and but two pages in Osler's system. Instead, we have a bewildering multiplicity of names for very much the same train of symptoms, while the varying classification and the hazy indications for treatment only show our ignorance.

The first question that arises is, in what cases are we to suspect the presence of intestinal indigestion? Probably in no other situation have we more need for remembering what Plato has said of medicine, "This is an art which considers the constitution of the patient."

It is generally accepted now that the proper function of most of the abdominal organs depends largely on the maintenance of abdominal equilibrium. Also, that the position of an organ is not maintained by the delicate folds of peritoneum called ligaments, but depends upon the tone of the abdominal muscles, the integrity of the pelvic floor and the relative size of the abdominal cavity and its contents. We were not surprised, therefore, when we found that the most marked instances of defective intestinal function are usually associated with mucous colitis, constipation, etc., in people who have more or less enteroptosis.

Granting, then, that we must always suspect intestinal indigestion in the enteroptotic, when must we suspect the presence of enteroptosis? If we still held the views of Glénard, we would look for his disease only in women who have borne many children, or who have had some sudden change in abdominal pressure; but Stiller has shown us that there is an underlying basis for enteroptosis, a congenital predisposition which can be recognized in the "Habitus Enteroptoticus seu Paralyticus."

Thus we must be on the lookout for a woman, or frequently enough a man, with a small frame, poorly developed muscles and a long, flat thorax, which has a very narrow epigastric angle. The diagnosis in severe cases is made even before the patient undresses. On standing, the lower abdomen is protuberant and the upper part is flat and retracted. On lying down, the organs fall back into their places and may be palpated perfectly through the thin, lax wall. Under these conditions it is very easy to demonstrate that the colon, stomach, liver and kidneys are below their normal positions. Sucussion sounds are easily obtained in the atonic stomach, and the greater curvature may often be mapped out in this way. Atony and ptosis of the stomach will be found in all typical cases of the disease, but we cannot emphasize too strongly the fact that this is but a part of the general picture and any attempt to deal with it as an entity will result in failure.

The great etiologic importance of enteroptosis is beautifully shown in the cases where there has been a rapid loss of weight from some cause or other—often in women who have been reduced too rapidly, or in people who have gone through some debilitating illness. The rapid change in abdominal pressure brings out a latent enteroptosis which disturbs digestion and leads to further loss of weight. We would emphasize the fact that the vicious circle thus formed can be broken only by forced feeding.

The history of digestive disturbance generally goes back a long way to childhood, or possibly to the time of mental stress at college. Rarely can anything definite be ascertained as to the particular foods that disagree. Some patients avoid starches and a few have learned to leave bulky vegetables alone. There is rarely any nausea or vomiting, only a sense of fulness after meals and an annoying consciousness of digestion. There is no definite localized pain such as we expect to find in gastric or duodenal ulcer; the discomfort does not come at any definite time after eating, nor is it relieved by the taking of a little warm food.

There may often be some vague, poorly defined abdominal pain, and when mucous colitis is marked, careful inquiry will often reveal a history of occasional acute attacks of very severe pain. Such at-

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tacks quite frequently lead to the removal of a normal appendix.

Flatulence is generally a cardinal symptom and this often leads to circulatory symptoms which may greatly alarm the patient. In fact, a large proportion of our cases have been referred to us for heart disease, when all that was needed was the correction of intestinal indigestion and the disembarrassment of the diaphragm. Another cause for the impaired circulation so generally found in these cases is the imperfect action of the diaphragm in its lowered position. Although the fact is not generally recognized, the diaphragm is one of the most valuable adjuncts of the circulation. Under normal conditions it descends on inspiration, and while producing a negative pressure in the thorax, at the same time it expels blood from the abdominal cavity by squeezing the great veins against the tonic resistance of the abdominal walls. In enteroptosis, the diaphragm drops as low as its mediastinal connections will permit so that during inspiration, it can descend only a little way before it is carried up by the movement of the thorax as a whole.

At times these people will digest quite well, but when much fatigued their functions may be almost paralyzed. In fact, they are so susceptible to fatigue and its sequelae that Stiller's book is entitled, "The Asthenic Diathesis."

In spite of the poor digestion which leaves a bulky irritant residue in the colon, constipation is generally obstinate. This must be due largely to the prolapsed and atonic condition of the colon, which, again, is but a part of the whole picture.

Foremost among the means of judging of the efficiency of intestinal digestion must always be the examination of the stools, but, owing to the idea that it is a difficult and laborious procedure which must be preceded by the giving of a test diet, it has not come into general use. By eliminating the test diet, which we have found to be neither necessary nor desirable, and by simplifying the method of examination, we are able to use this procedure in all cases where there is a suspicion of digestive disturbance and have found it an invaluable aid in diagnosis, and especially in the adapting of diets to individuals. In fact, the information so easily gained in this way has proven to be so much more useful than that obtained by gastric analysis, that now we employ the latter procedure only when there are definite signs of gastric involvement.

Although intestinal digestion is generally affected more or less as a whole, different types may be recognized, according as we find starch, cellulose, or meat, preponderating in the excreta.

No discussion of intestinal indigestion would be complete without a few words on mucous colitis. This common condition, which has received very little attention in this country, is very closely related to enteroptosis, intestinal indigestion and constipation. Our experience has been that they nearly always go hand in hand. In many cases, indigestion seems to be secondary to a very severe mucous colitis and in others the colitis seems unimportant and often remains quiescent, but they react one upon the other and are both dependent upon the enteroptosis. We see this in men especially who may have the indigestion without enteroptosis. Such cases have no mucus in their stools. This complication is more or less responsible for the tender, thickened colon, the vague abdominal pain, the acute attacks resembling appendicitis, the flatulence, and the bran-bread diet that these people are generally taking to add to their misery.

The bran-bread, etc., are taken with the idea that the constipation is due solely to an over-hungry colon and that it can be cured by increasing the bulk of the feces with some indigestible substance, such as woody cellulose. Our studies have shown that just the reverse is true and that these people have the greatest difficulty in handling the cellulose in their diet. The great importance of cellulose lies, not in its food value, but in the fact that all vegetable foodstuffs are in little capsules which must be dissolved or burst before the contents are available. If the capsules remain intact, this food is either lost, or it is carried past the place where it is normally digested to be fermented later on by bacteria with the formation of substances irritant to the mucous membrane. It has also been shown that the addition of cellulose to a diet lowers the amount of proteid and starch which would otherwise be absorbed. From all of which it follows that these people should be given a concentrated diet of high caloric value which will tax their weakened powers of digestion as little as possible and leave no bulky residue to irritate the hypersensitive colon. Such a diet must be controlled frequently by the stool examination, and the symptoms, such as flatulence, auto-intoxication, etc., and the relative amounts of starch, meats and fats adjusted to the individual. All vegetables and starches should be cooked very thoroughly, and those, such as beans and peas, which have resistant capsules should be passed through a sieve and puréed.

Contrary to expectation, this diet rarely aggravates constipation and sometimes it even improves matters by relieving spasm due to bulky, irritant masses It is well, however, to have the patient eat plenty of stewed fruit without skins or seeds.

Stool examination seems to show that the diseased intestine is absolutely unable to deal with poorly chewed food, and many an indigestion can be cured by securing better conditions in the mouth.

Nothing will help the severer enteroptotic cases more than fattening. In such cases we generally give a diet containing 3000 to 5000 calories and a large amount of fat, mainly in the form of cream and butter. It is surprising how little difficulty is met with in giving so much food if it is properly prepared. There is generally some repulsion and disturbance for the first three or four days, but we have not as yet found a case where the diet had to be given up, or where it failed to produce the desired gain in weight. During the first few days the patient should be in bed, as the sagging intestines do their work very much better when they have fallen back into place. This treatment can be carried out best in a hospital, especially for the first week, when the patient must learn how to eat. A woman who has been living on tea and toast is more

than skeptical as to her ability to digest the prescribed diet. Once convinced, she can return to her home with a written list and there keep up the new-formed habits.

The importance of a well-fitted abdominal support is now becoming widely known. The essential point is that the lower abdomen must be lifted up and the upper part must be entirely free. The average well-constructed straight-front corset corresponds pretty well to the needs of these cases. We have seen a number of cases, especially in the clinics, where no corset could be worn until a lacerated perineum was restored to function. There had to be a foundation on which to build.

The practice many surgeons have of "fixing" one or two of the prolapsed organs cannot be too strongly condemned, because it is irrational and does not take into account the condition as a whole. We all know the type of woman who has had her kidneys suspended; she is generally scarred from many operations, each one of which has left her more neurasthenic, and her kidneys are still floating. These remarks apply particularly to the palpable kidneys so frequently found, where there is no danger of Dietl's crises or any such complication. The dependence of these individual ptoses upon the general condition is well shown by the fact that a good corset is more efficient in holding up a floating kidney than the best pad made.

At the same time, the abdominal muscles must be developed by Swedish movements and massage. The patient must learn to sit up in bed from ten to fifty times without the aid of the hands.

The primary asthenia must be kept in mind and these patients must learn to conserve their strength and avoid excessive fatigue in any form. Under the circumstances the prognosis for complete recovery is not good, because the tendency to trouble remains and these people must always be careful, but wonderful relief can generally be obtained through attention to the foregoing principles.

We all see such cases every day, and after a man's attention has been called to these things he wonders how he could have missed them before. These people rarely suffer acutely, and the men particularly may never appeal to their physicians; but nothing can compensate them for the loss of that sense of efficiency and well-being which is one of the main joys of life.

Hope will be held out to them only as we learn to recognize the status enteroptoticus in all its manifestations, and, passing by the apparently isolated disturbances, direct our attention to guarding and strengthening of the vulnerable points in a congenitally weak body.

INTESTINAL INDIGESTION FROM A SURGICAL POINT OF VIEW.*

By RAE SMITH, M. D., Los Angeles.

The subject of intestinal indigestion from a surgical point of view is an extremely elastic one and with its necessary diversions, is entirely too broad to be covered in one short paper. It has been necessary for me. first to decide upon an angle of approach and next to decide what must be sacrificed to time limit. I have therefore confined myself to some of the abnormalities of the intestinal tract below the stomach, which medicine alone has failed to cure, and which seem to be coming more and more into the field of surgery.

There are many pathologic conditions in the intestinal tract necessitating surgery, manifested by widely varying symptoms, from the pylorospasm caused by muscular contraction of an obstructed gall bladder or constricted appendix to spasm of the anal sphincter caused by tumor or foreign body; which, however, do not fall within the scope of this discussion. Gall bladder disease may, however, be an important factor in true intestinal indigestion by its frequent association with, and causation of, chronic morbid processes in the pancreas.

Chronic pancreatitis is a very frequent complication of cholelithiasis, especially if the stones be situated in the common duct, and the function of the gland is interfered with, as is also the passage of the pancreatic juice to the duodenum by the inflammation of the head of the pancreas. The common duct in most patients lies imbedded in the pancreatic head for about one-third its length, where it unites with the main pancreatic duct (duct of Wirsung) in the ampulla of Vater. Stone lodged in this outer one-third of the common bile duct will not only cause obstruction of the main pancreatic duct by inflammation and subsequent contraction, but if it be situated at the junction in the ampulla, a direct mechanical obstruction to the flow of pancreatic secretion may also be present. The surgical indication here is removal of the irritating foreign body and the establishment of free drainage of both biliary and pancreatic passages. The ordinary procedure of removing all stones from the common duct, the subsequent passing of a large flexible probe into the duodenum to dilate the constricted lower end, and drainage of both the duct and the gall bladder will effect a symptomatic cure of the pancreatitis.

If, however, the gall bladder and common duct be found to be dilated without stone, permanent instead of temporary drainage must be established for the biliary passages. This is best secured by cholecystenterostomy, implanting the gall bladder in the intestine as high as is mechanically possible, either by mobilizing the duodenum or by bringing over the jejunum as high as possible without kink.

Cholecystectomy should by no means be performed in the presence of pancreatitis, unless the gall bladder be carcinomatous, as the only means of subsequent drainage of the biliary passages will then have been removed.

Realization of the frequent association of gall bladder and pancreatic disease has offered to me the explanation of some early failures to effect a permanent symptomatic cure with simple gall bladder drainage. Had cholecystenterostomy been done instead of cholecystostomy, the drainage would have been permanent and the cure as well. I refer to the cases with the symptom complex of cholecystitis with intestinal indigestion which present at opera

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